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(56) 参考文献 特開 昭62-124648 (J P, A)

特開 昭60-131663 (J P, A)

特開 平2-14450 (J P, A)

特開 平1-122054 (J P, A)

(54) 【発明の名称】 磁気記録再生装置のリール制動装置

(57) 【特許請求の範囲】

【請求項1】 磁気テープを巻装する一対のリールを平行に装填した磁気記録再生装置の、前記リールの内部に設けたフェルトと第1のスプリングによる第1のスリップ力で前記磁気テープの張力を制御するリール制動力を得るようにしたリール制動装置において、前記リールに設けたスリップ材、第2のスプリングおよびリールロックと、一端が前記スリップ材に常に係合しかつ他端が前記リールロックに前記リールの回転方向によって係合・離脱するロックレバーとを備え、前記リール制動力を必要とする回転方向の検出を、前記スリップ材と第2のスプリングによる第2のスリップ力で動作する前記ロックレバーの他端が前記リールロックに前記リールの回転方向によって係合・離脱することにより行うようにしたことを特徴とする磁気記録再生装置

のリール制動装置。

【発明の詳細な説明】

【産業上の利用分野】

この発明は、磁気記録再生装置において、リールの被駆動時の回転トルクを制御するリール制動装置の改良に関するものである。

【従来の技術】

第6図および第7図は従来のリール制動装置を示す概略平面図である。図において、(1)は磁気ヘッドを内蔵したドラム、(2)は磁気テープ、(3)は固定状態に設置したテープガイド、(4)、(5)、(6)、(7)、(8)、(9)は可動状態に設置したテープガイド、(10)は磁気テープ(2)の張力を検出するテンションピン、(11)はテンションピン(10)を保持したテンションアーム、(12)はテンションアーム(11)に

磁気テープ(2)の張力に抗する力を発生させるテンションスプリング、(13)は磁気テープ(2)を供給する供給リール、(14)は供給リール(13)にブレーキ力を与えるブレーキバンド、(15)はキャプスタン、(16)はキャプスタン(15)に磁気テープ(2)を圧接させるピンチローラ、(17)は巻取りリールを駆動するギアリール、(18)はギアリール(17)を駆動するアイドラギア、(19)はアイドラギア(18)を駆動するプーリギア、(20)はプーリギア(19)に同軸上で直結されかつ図示しないがキャプスタン(15)を駆動するモータにより駆動力の伝達を得るアイドラプーリ、(22)はカセットケース、(21)はカセットケース(22)内の巻取りギア(図示せず)にギアリール(17)の回転を伝達する中継ギア、(23)はデッキベース、(24)はギアリール(17)に制動をかけるブレーキ、(25)はブレーキ(24)に制動力を発生させるスプリングである。

第8図は第6図の巻取りリールの駆動力伝達機構部を示す断面図である。図において、(26)はギアリールシャフト、(27)はギアシャフト、(28)は抜け止めワッシャ、(29)は磁気テープ(2)を巻き取る巻取りリール、(30)は加圧バネ、(31)は巻取りリール(29)を保持したリールシャフト、(32)はアイドラギア(18)を保持したアーム、(33)はアームシャフト、(34)はアイドラギア(18)の回転力を得るスリッパギア、(35)はハウジングで、ギアリール(17)に圧入固定されている。(36)はギアリール(17)に貼付固定したスリッパ用フェルト、(37)はスリッパギア(34)をフェルト(36)に押し付けて一定値の回転伝達力を発生させるスプリングである。

次に動作について説明する。磁気テープ(2)を再生するときのカセットケース(22)内の巻取りリール(29)に磁気テープ(2)が巻き取られるメカニズムは、第8図においてアイドラギア(18)からの回転力がスリッパギア(34)、フェルト(36)、ギアリール(17)、中継ギア(21)を介して巻取りリール(29)に伝達されることにより、磁気テープ(2)が巻取りリール(29)に巻き取られる。通常の再生状態は第6図に示すように磁気テープ(2)がA方向に送られている状態である。この状態ではギアリール(17)と一体となったハウジング(35)にブレーキ(24)は接触していない。

逆転再生時の状態は第7図に示すように磁気テープ(2)がB方向に送られている状態である。この状態ではギアリール(17)と一体となったハウジング(35)にブレーキ(24)が一定圧で接触するので、このハウジング(35)の制動力がギアリール(17)、中継ギア(21)を介して巻取りリール(29)に働き、磁気テープ(2)に張力が与えられる。なお、この逆転再生時にはアイドラギア(18)はスリッパギア(34)と係合していない。

〔発明が解決しようとする課題〕

従来のリール制動装置は以上のように構成されている

ので、磁気テープ(2)の送り方向によってその都度磁気テープ(2)に張力を与えるブレーキ(24)を動作させなければならず、その操作を行うための構成が複雑になると共にその操作を行う駆動力源のモータも必要となるなどの問題点があった。

この発明は上記のような問題点を解消するためになされたもので、ブレーキ操作のための構成を無くし、従来ブレーキ操作を行う駆動源となっていたモータを使用することなく、必要なテープ送り方向の時のみ磁気テープに張力をかけ得る磁気記録再生装置のリール制動装置を得ることを目的とする。

〔課題を解決するための手段〕

上記目的を達成するために、この発明に係るリール制動装置は、リールに設けたスリッパ材、第2のスプリングおよびリールロックと、一端が前記スリッパ材に常に係合しかつ他端が前記リールロックにリールの回転方向によって係合・離脱するロックレバーとを備え、リール制動力を必要とする回転方向の検出を、前記スリッパ材と第2のスプリングによる第2のスリッパ力で動作する前記ロックレバーの他端が前記リールロックにリールの回転方向によって係合・離脱することにより行うようにしたものである。

〔作用〕

この発明においては、テープ張力を発生させるリール制動力を、リールの内部に設けたフェルトと第1のスプリングによる第1のスリッパ力で得るようにし、またリールに設けたスリッパ材と第2のスプリングによる第2のスリッパ力で動作するロックレバーの他端がリールロックにリールの回転方向によって係合・離脱することにより、リール制動力を必要とする回転方向の検出を行うようにした。

〔実施例〕

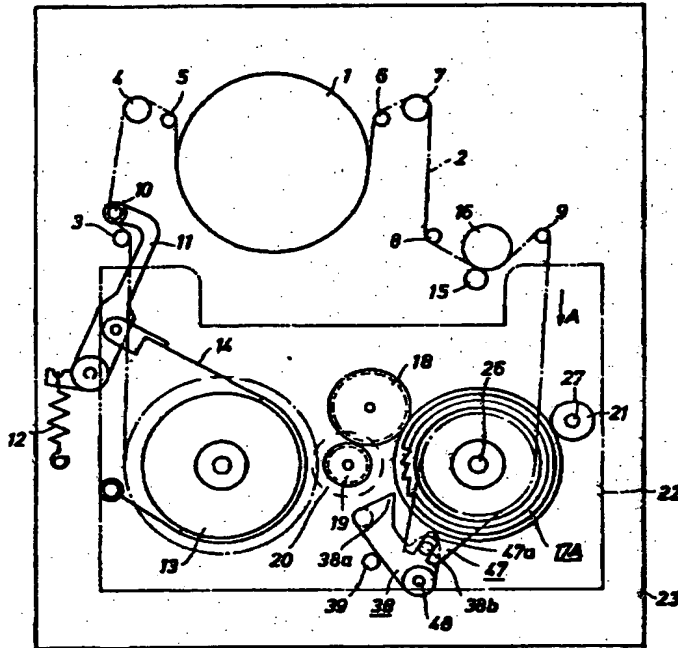
以下、この発明の一実施例を第1図～第5図について説明する。第1および第2図は本装置の概略平面図、第3図はリールの駆動力伝達機構部を示す断面図、第4図は第1図のギアリール部を示す拡大平面図、第5図は第1図のリールの駆動力伝達機構部を示す断面図であり、前記従来装置と同一または相当部分には同一部号を付して説明を省略する。

図において、(17A)は中継ギア(21)を介して巻取りリール(29)を駆動するギアリール、(40)はギアリール(17A)に回転自在にはめ込んだスリッパギア、(41)はギアリール(17A)に貼付固定したスリッパ用フェルト、(42)はフェルト(41)にスリッパギア(40)を押し付けて第1のスリッパ力を発生させる第1のスプリング、(43)は第1のスプリング(42)とスリッパギア(40)とが直接接触して過大な摩擦力を発生しないようにするためのスペーサ、(44)はギアリール(17A)に圧入固定されてギアリール(17A)全体を保持したハウジング、(45)はスリッパギア(40)に回転自在にはめ

なお、第3図および第4図において、スイングレバー(47)が第2のスプリング(46)の押圧力により回転することにより、ロックレバー(38)の一端凸部(38b)を操作して他端爪部(38a)のリールロック(45)の爪部(45a)へのかみ込みを決定している。(38c)はロッ

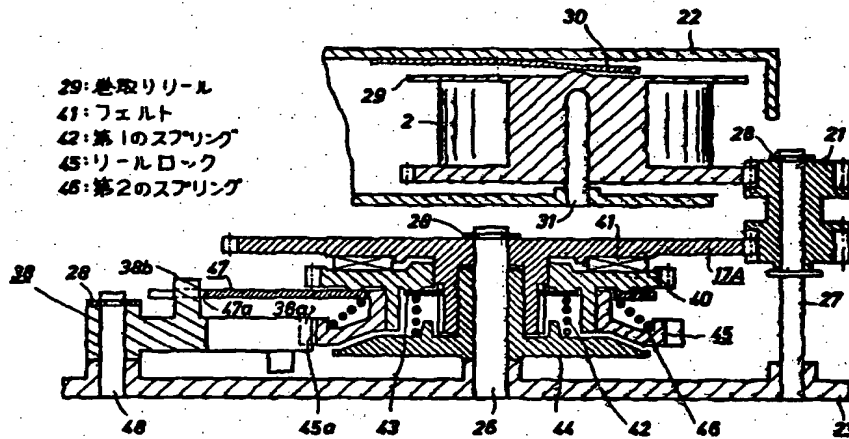
なお、図中同一符号は同一又は相当部分を示す。

【第1図】

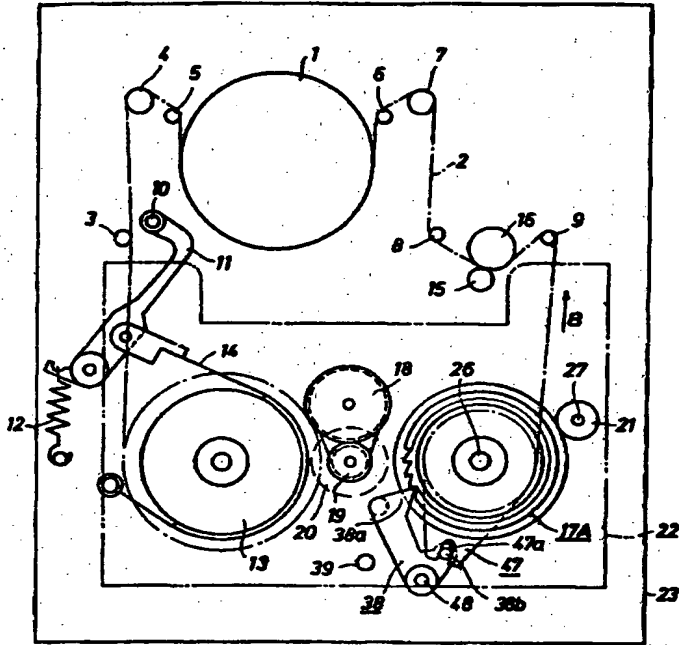


2:磁気テープ
13:供給リール
38:ロックレバー
17A:ギアリール
47:スリップ材

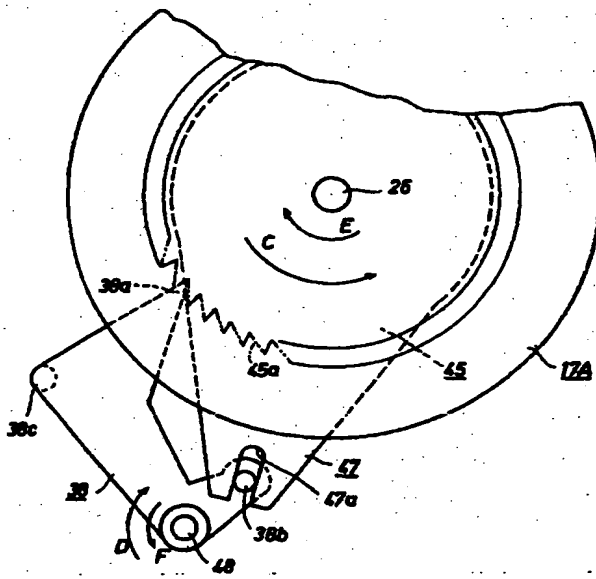
【第3図】



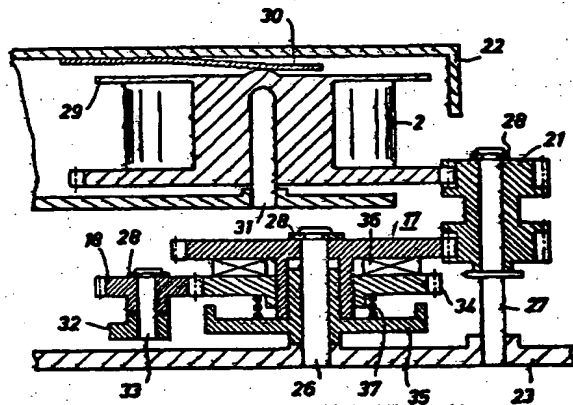
【第2図】



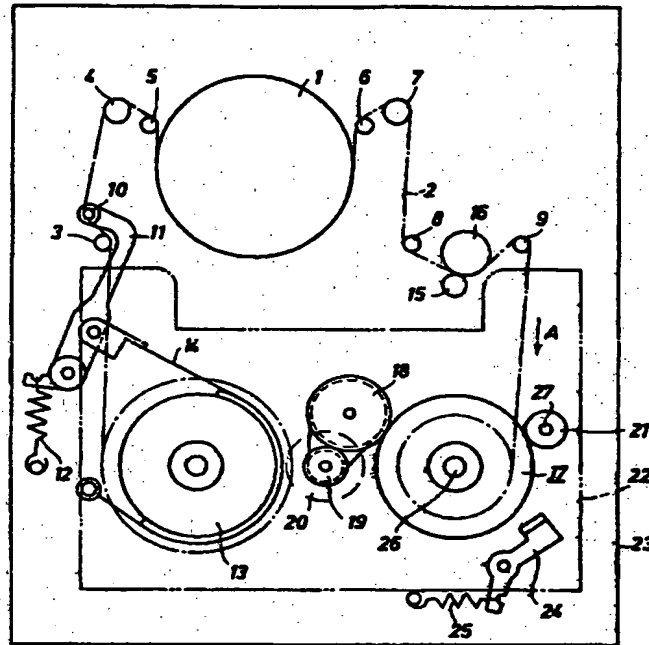
【第4図】



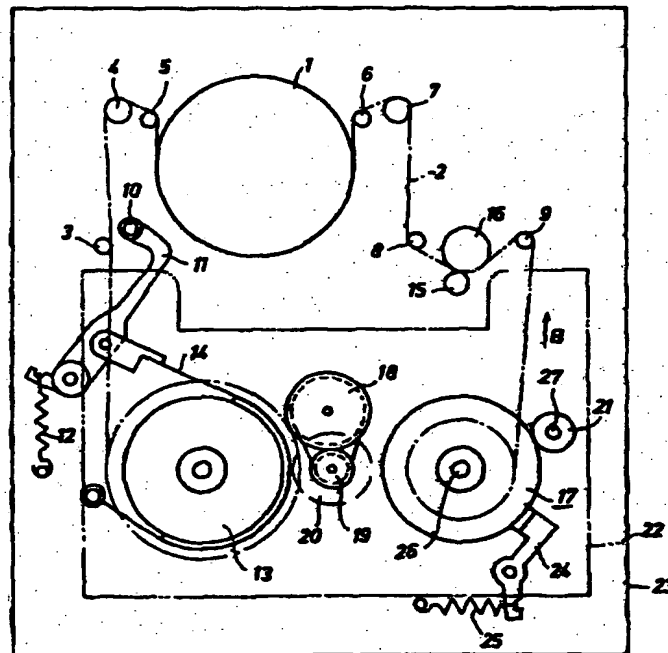
【第8図】



【第6図】



【第7図】



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CLAIMS

(57) [Claim(s)]

[Claim 1] The magnetic recorder and reproducing device which loaded parallel with the reel of the couple which loops around a magnetic tape, In the reel damping device which acquired the reel damping force which controls the tension of said magnetic tape by the 1st slip force by the felt and the 1st spring which were prepared in the interior of said reel The 2nd slip material, spring, and reel lock which were prepared in said reel, An end always engages with said slip material, and the other end equips said reel lock with the locking lever from which it engages and secures by the hand of cut of said reel. Detection of the hand of cut which needs said reel damping force The reel damping device of the magnetic recorder and reproducing device with which the other end of said

locking lever which operates by the 2nd slip force by said slip material and 2nd spring is characterized by carrying out to said reel lock by engaging and breaking away by the hand of cut of said reel.

DETAILED DESCRIPTION

[Detailed Description of the Invention]

[Industrial Application]

This invention relates to amelioration of the reel damping device which controls the running torque at the time driven [of a reel] in a magnetic recorder and reproducing device.

[Description of the Prior Art]

Figs. 6 and 7 are outline top views showing the conventional reel damping device. In drawing, the drum which contained the magnetic head, and (2) (1) A magnetic tape, The tape guide which installed (3) in the fixed condition, (4), (5), (6), The tape guide which installed (7), (8), and (9) in flight readiness, the tension pin by which (10) detects the tension of a magnetic tape (2), The tension arm to which (11) held the tension pin (10), the tension spring made to generate the force in which (12) resists the tension of a magnetic tape (2) at a tension arm

(11), The supply reel by which (13) supplies a magnetic tape (2), the brake band with which (14) gives a brake force to a supply reel (13), The pinch roller to which (15) uses a capstan as a capstan (15) and (16) uses the pressure welding of the magnetic tape (2), The gear reel by which (17) drives a machine reel, the idler gear on which (18) drives a gear reel (17), The idler pulley which obtains transfer of driving force by the motor which drives a capstan (15) although the pulley gear which drives an idler gear (18), and (20) are directly linked with a pulley gear (19) on the same axle and (19) does not illustrate, The junction gear which (22) delivers a cassette case to the rolling-up gear (not shown) within a cassette case (22), and (21) delivers a revolution of a gear reel (17), The brake to which (23) covers the deck base over a gear reel (17), and (24) covers braking, and (25) are springs which make a brake (24) generate damping force.

Drawing 8 is a sectional view showing the driving force transfer device section of the machine reel of drawing 6 . In drawing a gear reel shaft and (27) (26) A gear shaft, The machine reel with which (28) falls out and a stop washer and (29) roll round a magnetic tape (2), The reel shaft at which (30) held the application-of-pressure spring and (31) held the machine reel (29), The slip gear from which the arm on which (32) held the idler gear (18), and (33) acquire an arm shaft, and (34) acquires the turning effort of an idler gear (18), and (35) are housing, and press fit immobilization is carried out at the gear reel (17). (36) is a

spring which the felt for a slip which carried out pasting immobilization, and (37) force a slip gear (34) on a gear reel (17) at felt (36), and is made to generate the revolution transfer force of constant value.

Next, actuation is explained. As for the mechanism by which a magnetic tape (2) is rolled round by the machine reel (29) within the cassette case (22) when playing a magnetic tape (2), a magnetic tape (2) is rolled round by the machine reel (29) by transmitting the turning effort from an idler gear (18) to a machine reel (29) through a slip gear (34), felt (36), a gear reel (17), and a junction gear (21) in drawing 8 . The usual playback condition is in the condition that the magnetic tape (2) is sent in the direction of A as shown in drawing 6 . In this condition, the brake (24) does not touch housing (35) which was united with the gear reel (17).

The condition at the time of inversion playback is in the condition that the magnetic tape (2) is sent in the direction of B as shown in drawing 7 . Since a brake (24) contacts housing (35) which was united with the gear reel (17) in this condition by 1 constant pressure, the damping force of this housing (35) works to a machine reel (29) through a gear reel (17) and a junction gear (21), and tension is given to a magnetic tape (2). In addition, the idler gear (18) is not engaging with a slip gear (34) at the time of this inversion playback.

[Problem(s) to be Solved by the Invention]

Since the conventional reel damping device was constituted as mentioned above, the brake (24) which gives tension to a magnetic tape (2) by the feed direction of a magnetic tape (2) each time had to be operated, and while the configuration for performing the actuation became complicated, there were troubles, like the motor of the source of driving force which performs the actuation is also needed.

This invention was made in order to cancel the above troubles, it loses the configuration for brakes operation, and it aims at obtaining the reel damping device of the magnetic recorder and reproducing device which can apply tension to a magnetic tape only at the time of the required direction of a tape feed, without using the motor used as the driving source which performs brakes operation conventionally.

[The means for solving a technical problem]

In order to attain the above-mentioned object, the reel damping device concerning this invention The 2nd slip material, spring, and reel lock which were prepared in the reel, An end always engages with said slip material, and the other end equips said reel lock with the locking lever from which it engages and secedes by the hand of cut of a reel. The other end of said locking lever which operates by the 2nd slip force by said slip material and 2nd spring is made to perform detection of the hand of cut which needs reel damping force to said reel

lock by engaging and breaking away by the hand of cut of a reel.

[Function]

In this invention, it was made the hand of cut where the other end of the locking lever which operates by the 2nd slip force by the slip material and the 2nd spring which acquired the reel damping force which generates tape tension by the 1st slip force by the felt and the 1st spring prepared in the interior of a reel, and formed it in the reel needs reel damping force for a reel lock by engaging and breaking away by the hand of cut of a reel having detected.

[Example]

Hereafter, one example of this invention is explained about Figs. 1 - 5 . the sectional view in which drawing's 1st [the] and 2 showing the outline top view of this equipment, and showing [3] the driving force transfer device section of a reel, the amplification top view showing [4] the gear reel section of drawing 1 , and the sectional view showing [5] the driving force transfer device section of the reel of drawing 1 -- it is -- the same as that of said conventional equipment, or a considerable part -- said -- a part -- a number is attached and explanation is omitted.

The gear reel by which (17A) drives a machine reel (29) through a junction gear (21) in drawing, The slip gear which inserted (40) in the gear reel (17A) free [rotation], The felt for a slip in which (41) carried out pasting immobilization at

the gear reel (17A), The 1st spring which (42) forces a slip gear (40) on felt (41), and is made to generate the 1st slip force, A spacer for the 1st spring (42) and slip gear (40) to contact directly, and for (43) not generate excessive frictional force, Housing which press fit immobilization of (44) was carried out at the gear reel (17A), and held the whole gear reel (17A), The reel lock to which (45) was inserted in the slip gear (40) free [rotation], The swing lever on which (47) acts as slip material in contact with a slip gear (40), The 2nd spring which (46) forces a swing lever (47) on a slip gear (40), and is made to generate the 2nd slip force, The locking lever to which an end (38b) (heights) always engages with the slot (47a) of a swing lever (47), and the other end (38a) (claw part) engages and secedes from (38) by the hand of cut of a reel at a reel lock (45), (39) is the stopper of a locking lever (38) and (48) is the rotation pivot of a locking lever (38). Next, actuation is explained. When playing a magnetic tape (2), as shown in drawing 1 , a magnetic tape (2) is sent in the direction of A. At this time, a magnetic tape (2) is rolled round in the path of the device shown in Figs. 3 and 5 , without applying damping force to a gear reel (17A). That is, it rolls round to the junction gear (21) shown in drawing 3 through a slip gear (40), felt (41), and a gear reel (17A) from the idler gear (18) shown in drawing 5 , and the force is transmitted and a magnetic tape (2) is rolled round by the machine reel (29).

Next, when carrying out inversion playback of the magnetic tape (2), as shown in

drawing 2 , a magnetic tape (2) is sent in the direction of B. It is necessary to give damping force as usual to a gear reel (17A), and to give tension to a magnetic tape (2) at this time.

That is, this damping force is acquired as follows. the other end claw part (38a) of the locking lever (38) in drawing 4 – the claw part (45a) of a reel lock (45) – biting – being crowded (drawing 2 operating [this]), while a reel lock (45) suspends a revolution in drawing 3 Since the slip gear (40) which is carrying out press fit engagement with this suspends a revolution The frictional force in the felt (41) pressurized by the 1st spring (42) through the junction gear (21) by the machine reel (29) which has sent out the magnetic tape (2) turns into the 1st slip force, it is transmitted in the form where a gear reel (17A) is braked, and damping force is acquired.

In addition, in Figs. 3 and 4 , when a swing lever (47) rotates by the thrust of the 2nd spring (46), the end heights (38b) of a locking lever (38) were operated, and the bite lump by the claw part (45a) of the reel lock (45) of an other end claw part (38a) is determined. (38c) is the heights prepared in the locking lever (38), and is a thing to bite and for ** perform ** to a reel lock (45), compulsorily by the device which is not illustrated.

If a reel lock (45) rotates in drawing 4 now in the direction of C (it corresponds in the direction of B of drawing 2) Since a locking lever (38) rotates in the direction

of D focusing on a rotation pivot (48) by the swing lever (47) rotated according to the 2nd slip force, the other end claw part (38a) of a locking lever (38) gears to the claw part (45a) of a reel lock (45), and the brake works. On the contrary, in a revolution of the direction (it corresponds in the direction of A of drawing 1) of E of a reel lock (45), since a locking lever (38) rotates in the direction of F, the other end claw part (38a) of a locking lever (38) escapes from the claw part (45a) of a reel lock (45), and a brake does not act. If a locking lever (38) is rotated in the direction of constant-rate F at this time, rotation will stop in a stopper (39).

[Effect of the Invention]

As mentioned above, tension developmental mechanics required when sending out a magnetic tape according to this invention is prepared in the interior of the reel which sends out a magnetic tape. Moreover, since it constituted so that it could choose by the easy member which gears to the slip device which also established the hand of cut of the reel which should apply braking to a reel in that case in the interior, and this The effectiveness that the motor which was being operated in order to make the conventional damping device operate it, while it becomes a easier configuration and equipment becomes cheap also becomes unnecessary is acquired.

DESCRIPTION OF DRAWINGS

[Brief Description of the Drawings]

Drawing 1 and the outline top view of this equipment according [drawing 2] to one example of this invention, The sectional view showing [3] the driving force transfer device section of the reel of drawing 1 , the amplification top view showing [4] the gear reel section of drawing 1 , The outline top view showing the reel damping device of the former [Figs. / the sectional view showing / 5 / the driving force transfer device section of the reel of drawing 1 and / 6 and 7] and drawing 8 are sectional views showing the driving force transfer device section of the machine reel of drawing 6 .

drawing -- setting -- (2) -- a magnetic tape and (13) -- a supply reel and (17A) -- a gear reel and (29) -- a machine reel and (38) -- in a locking lever and (41), a reel lock and (46) show the 2nd spring, and, as for felt and (42), (47) shows slip material, as for the 1st spring and (45).

In addition, a same-among drawing sign shows the same or a considerable part.